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Dated: 1-5-04

Signature: Nancy DeRiggi

(Nancy DeRiggi)



Docket No.: 325772026400  
(PATENT)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of:  
Junji MACHIDA et al.

Application No.: 09/924,494

Confirmation No.: 2609

Filed: August 9, 2001

Art Unit: 2852

For: DEVELOPING DEVICE AND IMAGE  
FORMING APPARATUS

Examiner: Sandra L. Brase

**APPELLANTS' OPENING BRIEF**

Customer Window, MS Appeal Brief - Patents  
U.S. Patent and Trademark Office  
2011 South Clark Place  
Crystal Plaza Two, Lobby, Room 1B03  
Arlington, Virginia 22202

Dear Sir:

**I. REAL PARTY IN INTEREST**

The real party in interest for this appeal is:

Minolta Co., Ltd.

**II. RELATED APPEALS AND INTERFERENCES**

There are no related appeals or interferences within the meaning of 37 CFR 1.192(c)(2) known to appellants or appellants' undersigned counsel.

**III. STATUS OF CLAIMS**

Claims 1-5 and 21-23 (reproduced in the attached Appendix) are pending and under consideration in this application. Claims 1-5, 22 and 23 were finally rejected under 35 USC 103(a) as being unpatentable over Machida, U.S. Patent 5,875,379, in view of Kasuya, U.S. Patent

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5,571,653. Claim 21 was finally rejected under 35 USC 103(a) as being unpatentable over Machida in view of Kasuya and further in view of Shimojo, U.S. Patent 5,436,701.

A. Current Status of Claims

1. Claims withdrawn from consideration but not cancelled: 6-20
2. Claims pending: 1-5 and 21-23
3. Claims allowed: none
4. Claims rejected: 1-5 and 21-23

B. Claims On Appeal

The claims on appeal are claims 1-5 and 21-23.

**IV. STATUS OF AMENDMENTS**

No amendments have been submitted subsequent to the final rejection.

**V. SUMMARY OF INVENTION**

The present invention relates to an image forming apparatus, such as copiers, printers, and the like (paragraph [0002]). More specifically, the invention is directed to prohibiting deterioration of the developer carrying member 11, regulating member 14, supply roller 13 and charger member 2 due to contact with the developer (paragraph [0002] and Fig. 2).

Image forming apparatuses have conventionally employed various types of developing devices for developing the electrostatic latent image formed on an image bearing member (see element 1 in Fig. 1 for an example of an image bearing member). One such device is a two-component development system which employs a developer which has a carrier and a toner. Another such device is known as a one-component system which uses a developer that has a toner but no carrier (paragraph [0004]). The one-component system is illustrated in Fig. 1, the operation of which is described in paragraph [0006]. In this system, it is known to take countermeasures

against toner cracks by forming an elastic layer on the surface of the developer carrying member 11 or forming the portion of the regulating member 14 which makes contact with the developer carrying member 11 from an elastic material (paragraph [0009]). However, if the toner known in the art is used, the organic aromatic solvent and vinyl monomer remaining in the toner will gradually penetrate into the elastic layer on the surface of the developer carrying member 11 or into the regulating member 14. This will cause progressive deterioration of the characteristics of these elements (paragraph [0011]). The claimed invention is directed to overcoming this problem.

As seen in Fig. 2, a charger member 20 electrifies the surface of the image bearing member 1. Subsequently, an electrostatic latent image forming device 3 irradiates the surface of the image bearing member 1 with light corresponding to image information thereby forming the electrostatic latent image on the surface of the image bearing member 1 (paragraph [0032]). A developing device 10 supplies toner t to the area where the electrostatic latent image is formed on the surface of the image bearing member 1. A transfer device 4 transfers the toner image from the image bearing member 1 to a receiving medium such as paper (paragraph [0033] and Fig. 2).

A developer carrying member 11 supplies the toner t from the developing device 10 to the latent image formed on the image bearing member 1 (paragraph [0034]). While the developer carrying member is rotated, a feeding member 12 feeds the toner t to a supply roller 13, which rotates in contacting relation with the developer carrying member 11, so that the toner t is supplied to the developer carrying member 11 via the supply roller 13 (paragraph [0034]). The toner t supplied to the surface of the developer carrying member 11 is carried on the developer carrying member 11 while a regulating member 14 is pressed against the surface of the developer carrying member 11 to regulate the amount of toner t carried on the surface of the developer carrying member 11 and to triboelectrify the toner t (paragraph [0035]).

The toner t of claim 1 contains an organic aromatic solvent and a vinyl monomer in combined concentrations of not more than 500 ppm (claim 1 and paragraph [0036]). With the toner of claim 1, the surface layer 22 of the charger member 20 suffers less penetration of the organic aromatic solvent and vinyl monomer contained in the toner. This prevents a change in characteristics, such as rubber hardness and electrical resistance, of the surface layer 22, and thus

the surface of the image bearing member 1 is uniformly charged in a stable manner. This ensures that high quality images are provided over an extended period of time (paragraph [0051]).

Also according to claim 1, the developer carrying member 11 has a rubber hardness of 20 to 70 degrees, an elongation of 400 to 1200 % and a volume electrical resistance of  $1 \times 10^4$  to  $1 \times 10^9 \Omega \cdot \text{cm}$  at its surface (see also paragraph [0057]). These features prevent the toner from cracking when the regulating member 14 makes contact with the developer carrying member 11 and further allows the developer carrying member to be suitably electrified (paragraph [0057]).

#### **VI. ISSUES PRESENT FOR REVIEW**

Whether the Examiner erred in rejecting claims 1-5, 22 and 23 under 35 USC 103(a) as being unpatentable over Machida in view of Kasuya, and whether the Examiner erred in rejecting claim 21 under 35 USC 103(a) as being unpatentable over Machida in view of Kasuya, as applied to claim 1 and further in view of Shimojo.

#### **IV. GROUPING OF CLAIMS**

Claims 1-5 and 21-23 stand or fall together.

#### **V. ARGUMENTS**

##### **A. The rejection of claims 1-5, 22 and 23 under 35 USC 103(a) as being unpatentable over Machida in view of Kasuya should be reversed.**

Claims 1-5, 22 and 23 have been rejected under 35 USC 103(a) as being unpatentable over Machida in view of Kasuya.

Claim 1 recites a toner “containing an organic aromatic solvent and a vinyl monomer in combined concentrations of not more than 500 ppm.”

In the Office Action dated November 20, 2003 (Paper No. 8), the Examiner cited Machida as teaching everything except the claimed type of toner. The Examiner asserted that Kasuya teaches a toner used in a developing device containing an organic aromatic solvent and a

vinyl monomer in combined concentrations of not more than 1,000 ppm, where it is preferable that the combined concentrations be made not more than 700 ppm, and more preferably not more than 300 ppm. The Examiner stated that “[I]t would have been obvious to one of ordinary skill in the art at the time of the invention to use the claimed type of toner in the developing device since such a toner is well known in the art for use with a developing device, as disclosed in Kasuya” (pg. 3).

In the response filed on March 20, 2003 (Paper No. 9), Appellants asserted that, when an obviousness determination relies on the combination of two or more references, there must be some suggestion or motivation to combine the references. Further, the suggestion to combine may be found in explicit or implicit teachings within the references themselves, from the ordinary knowledge of those skilled in the art, or from the nature of the problem to be solved. When determining the patentability of a claimed invention which combines two known elements, the question is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination. (citing *WMS Gaming, Inc. v. International Game Technology*, 184 F.3d 1339, 1355 (Fed. Cir. 1999)).

Appellants respectfully submit that there is no suggestion to modify Machida in light of the teachings of Kasuya. The toner disclosed in Kasuya was developed specially for use with heat as a means to fix the image to the transfer medium (col. 1, lines 13-21). Thus, the toner is developed to withstand this heat so that the toner does not adhere to the heat roll (col. 1, lines 31-38). The problems sought to be solved in Machida are much different. Machida seeks to avoid cracking of the toner when the controlling member is pressed against the surface of the developer carrying member (col. 2, lines 1-12). Therefore, since the problems sought to be solved in Kasuya do not even closely relate to the problems sought to be solved in Machida, there would have been no motivation to use the toner type disclosed in Kasuya in the device of Machida. Furthermore, since Kasuya teaches using heat to fix the image, and Machida teaches using a controlling member to press against the surface of the developer carrying member to adhere the toner, these references actually teach away from each other. The desired qualities of the toner used are necessarily different because of the difference in the process used to apply the toner to the developer carrying member.

In response to Appellants' arguments, the Examiner argued in the final Office Action dated June 6, 2003 (Paper No. 10) that the motivation to combine the references is that Kasuya discloses a toner that is made so that it is capable of developing electrostatic images, where the developing device in Machida is implemented to develop an electrostatic latent image by the use of a toner, hence it would have obvious to one of ordinary skill in the art at the time of the invention to use the toner composition of Kasuya in the developing device of Machida for the development of electrostatic latent images since the toner composition is well known in the art to be capable of developing electrostatic latent images.

The Examiner's reasons to combine the teachings of these reference appears to be this, Kasuya discloses a toner, and since Machida needs to use a toner, it would have been obvious to use the toner of Kasuya in the device of Machida. The Examiner is neglecting to consider that Machida already discloses a developer but does not disclose the exact type of developer/toner claimed nor the type of developer/toner disclosed in Kasuya. One would have to have been motivated not only to use a toner (any toner) to make the device work, but one would have needed to have been motivated to switch from the toner already disclosed in Machida to the specific toner disclosed in Kasuya. According to the Examiner's logic, there would have been motivation to combine any reference which teaches any type of toner with the device of Machida. The fact is, there is no disclosure in Kasuya which would have motivated one of ordinary skill in the art to substitute the toner of Kasuya with the toner already disclosed by Machida. Merely because one reference teaches a type of toner and the other reference needs to use a type of toner is insufficient motivation to support this rejection.

Furthermore, Kasuya discloses that the toner contains the organic solvent and the monomer in an amount of not more than 1,000 ppm. The effect thereof is to obtain a toner that can be free from deterioration even when the toner contains a low-melting wax encapsulated in its particles and is left standing in an environment of high temperature (col. 4, lines 3-8). On the other hand, in the present invention, since the toner containing the organic solvent and monomer in the combined concentrations of not more than 500 ppm is used, the surface layer 11b of the developer carrying member 11 suffers less penetration of the organic solvent and monomer contained in the

toner. Thus a the change in the characteristics, such as rubber hardness and elongation, of the surface layer 11b is prevented. This ensures that favorable images are provided over an extended period of time (page 21, paragraph [0058]).

Kasuya does not even mention about the effects of the organic solvent and monomer contained in the toner on the developer carrying member.

In comparative Examples 2-1 and 2-2 of the present invention, the toner contains the organic solvent and the monomer respectively in an amount of 616 ppm and 530 ppm, satisfying the range of not more than 1,000 ppm limited by Kasuya. However, the effect of the present invention is not attained by said values of comparative Examples 2-1 and 2-2.

Thus, there would have been no motivation to combine the cited references and thus the rejected claims 1-5, 22 and 23 should be allowable.

**B. The rejection of claim 21 under 35 USC 103(a) as being unpatentable over Machida in view of Kasuya and further in view of Shimojo should be reversed.**

Claim 21 depends from claim 1. As stated above, there would not have been any motivation to combine Machida and Kasuya to reach the claimed invention. The combination of Shimojo is moot in light of the fact that one of ordinary skill in the art would not have been motivation to combine Machida and Kasuya. Thus, claim 21 should be allowable.

**VII. CONCLUSION**

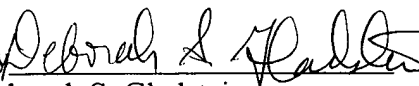
For the foregoing reasons, Appellants respectfully requests that the rejection of claims 1-5, 22 and 23 under 35 USC 103(a) be reversed. Appellants also respectfully request that the rejection of claim 21 under 35 USC 103(a) be reversed.

In the event that the transmittal letter is separated from this document and the Patent and Trademark Office determines that an extension and/or other relief is required, Appellants petitions for any required relief including extensions of time and authorize the Commissioner to charge the

cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing docket no. 325772026400.

Dated: January 5, 2004

Respectfully submitted,

By 

Deborah S. Gladstein

Registration No.: 43,636

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**APPENDIX OF APPEALED CLAIMS**

1. A developing device comprising:

a developer carrying member having a rubber hardness of 20 to 70 degrees, an elongation of 400 to 1200 % and a volume electrical resistance of  $1 \times 10^4$  to  $1 \times 10^9 \Omega \cdot \text{cm}$  at its surface;

a storage portion for storing a toner to be supplied to the developer carrying member, the toner containing an organic aromatic solvent and a vinyl monomer in combined concentrations of not more than 500 ppm; and

a regulating member disposed in contacting relation with the surface of the developer carrying member for regulating the amount of toner carried on the developer carrying member.

2. The developing device as claimed in Claim 1, wherein the developer carrying member comprises a metallic roller and a surface layer laid over an outer periphery of the roller.

3. The developing device as claimed in Claim 2, wherein the surface layer has a rubber hardness of 30 to 65 degrees, an elongation of 450 to 1000 % and a volume electrical resistance of  $5 \times 10^4$  to  $1 \times 10^8 \Omega \cdot \text{cm}$ .

4. The developing device as claimed in Claim 1, wherein the toner contains the organic aromatic solvent and the vinyl monomer in combined concentrations of not more than 300 ppm.

5. The developing device as claimed in Claim 1, wherein the toner contains the organic aromatic solvent and the vinyl monomer in combined concentrations of not more than 200 ppm.

21. The developing device as claimed in claim 1, wherein the toner contains binder resin, and vacuum drying is performed for preparing the binder resin.

22. The developing device as claimed in claim 1, wherein the toner has a volume average particle size of 5 to 14  $\mu\text{m}$ , in which the toner particles 3  $\mu\text{m}$  or less in size are present in concentrations of not more than 20% in terms of percentage of particle count.

23. A developing device comprising:  
a developer carrying member having a rubber hardness of 20 to 70 degrees, an elongation of 400 to 1200 % and a volume electrical resistance of  $1 \times 10^4$  to  $1 \times 10^9 \Omega \cdot \text{cm}$  at its surface; and  
a storage portion for storing a toner to be supplied to the developer carrying member, the toner containing an organic aromatic solvent and a vinyl monomer in combined concentrations of not more than 500 ppm.

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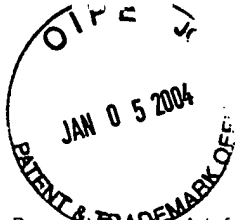
<b>TRANSMITTAL FORM</b> (to be used for all correspondence after initial filing)		Application Number	09/924,494
		Filing Date	August 9, 2001
		First Named Inventor	Junji MACHIDA
		Art Unit	2852
		Examiner Name	S. Brase
Total Number of Pages in This Submission	1	Attorney Docket Number	325772026400

## ENCLOSURES (Check all that apply)

<input checked="" type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation / Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____	<input type="checkbox"/> After Allowance Communication to Group <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input checked="" type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input type="checkbox"/> Other Enclosure(s) (please identify below):
Remarks		RECEIVED JAN - 8 2004 TECHNOLOGY CENTER 2800

## SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	MORRISON & FOERSTER LLP Deborah S. Gladstein - 43,636
Signature	<i>Deborah S. Gladstein</i>
Date	January 5, 2004



PTO/SB/17 (10-03)  
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# FEE TRANSMITTAL for FY 2004

Effective 10/01/2003, Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

**TOTAL AMOUNT OF PAYMENT (\$)** 330.00

## Complete if Known

Application Number 09/924,494  
Filing Date August 9, 2001  
First Named Inventor Junji MACHIDA  
Examiner Name S. Brase  
Art Unit 2852  
Attorney Docket No. 325772026400

## METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit Card ☐ Money Order ☐ Other ☐ None

☒ Deposit Account:

Deposit Account Number

03-1952

Deposit Account Name

Morrison & Foerster LLP

The Director is authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☒ Credit any overpayments

☒ Charge any additional fee(s) or any underpayment of fee(s)

☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

## FEE CALCULATION

### 1. BASIC FILING FEE

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1001	770	2001	385	Utility filing fee	
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

**SUBTOTAL (1) (\$)** 0.00

### 2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

	Extra Claims	Fee from below	Fee Paid
Total Claims	-20** =	x	=
Independent Claims	-3** =	x	=
Multiple Dependent		=	

Large Entity		Small Entity		Fee Description
Fee Code	Fee (\$)	Fee Code	Fee (\$)	
1202	18	2202	9	Claims in excess of 20
1201	86	2201	43	Independent claims in excess of 3
1203	290	2203	145	Multiple dependent claim, if not paid
1204	86	2204	43	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

**SUBTOTAL (2) (\$)** 0.00

\*\*or number previously paid, if greater; For Reissues, see above

## FEE CALCULATION (continued)

### 3. ADDITIONAL FEES

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet.	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for ex parte reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	330.00
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,330	2453	665	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37CFR 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify)

\*Reduced by Basic Filing Fee Paid

**SUBTOTAL (3) (\$)** 330.00

## SUBMITTED BY

(Complete (if applicable))

Name (Print/Type)	Deborah S. Gladstein	Registration No. (Attorney/Agent)	43,636	Telephone	(703) 760-7753
Signature				Date	January 5, 2004